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PATENTIN THE CLAIMS

Claims presented previously and new claims added herein are presented below with parenthetical status notations. An instruction line precedes each claim that is amended or added by the instant paper.

Please amend claim 1 as follows:

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1. [CURRENTLY AMENDED] A process for detecting threonine or serine kinase activity in an immunoassay comprising ~~the following steps:~~

- a) providing a threonine or serine kinase substrate protein or peptide comprising the sequence motif

-Z-X-Y or -Y-X-Z-

wherein

Z = threonine or serine

X = a sequence of amino acids, preferably between 1 and 1000 amino acids, which may be the same or different

Y = phospho-tyrosine, phospho-threonine or phospho-serine;

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~~as a substrate for threonine or serine kinase,~~
~~said protein or peptide being pre phosphorylated~~
~~at the Y position;~~

- b) incubating the protein or peptide with a
phosphate donor and a threonine or serine kinase
to form a protein or peptide which is
phosphorylated at positions Y and Z;
- c) adding an antibody having a specificity to a
peptide or protein which is phosphorylated at the
Y and Z position; and
- d) detecting the threonine or serine kinase
activity.

- ① 2. [ORIGINAL] The process according to claim 1, wherein
the phosphate donor is ATP, GTP, or a synthetic
cosubstrate.

Please amend claim 3 as follows:

3. [CURRENTLY AMENDED] The process according to claim 1,
wherein the immunoassay is performed as a direct
binding immunoassay, ~~preferably a homogeneous direct~~
~~binding immunoassay.~~

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Please amend claim 4 as follows:

4. [CURRENTLY AMENDED] The process according to claim 3,
wherein a ~~labelled~~said peptide or protein ~~is used~~
~~as~~further comprises a substratemolecular label.

Please amend claim 5 as follows:

5. [CURRENTLY AMENDED] The process according to claim 3,
wherein a ~~labelled~~said antibody ~~is used~~further
comprises a molecular label.

Please amend claim 6 as follows:

6. [CURRENTLY AMENDED] The process according to claim 4,
wherein ~~the peptide/protein or antibody~~said label is
~~labelled by~~selected from the group consisting of a
luminescent tag, a radioactive marker, a reporter
enzyme, ~~or~~and an affinity ligand.

Please amend claim 7 as follows:

7. [CURRENTLY AMENDED] The process according to claim 1,
wherein the immunoassay is performed as an indirect

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binding immunoassay, ~~preferably a homogenous indirect~~
~~binding immunoassay.~~

Please amend claim 8 as follows:

8. [CURRENTLY AMENDED] The process according to claim 7,
~~wherein a labelled ligand which is phosphorylated at~~
~~its Y and Z position (bis phosphorylated ligand) is~~
~~added to compete with the protein or peptide which is~~
~~phosphorylated at its Y and Z position (bis-~~
~~phosphorylated ligand) for binding to the antibody.7~~
further comprising:

①
e) adding a competitor protein or competitor peptide
comprising the sequence motif

-Z'-X'-Y' or -Y'-X'-Z'-

wherein

Z' = phospho-threonine or phospho-serine

X' = a sequence of amino acids, preferably

between 1 and 1000 amino acids, which may be
the same or different

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Y' = phospho-tyrosine, phospho-threonine or
phospho-serine.

Please amend claim 9 as follows:

9. [CURRENTLY AMENDED] The process according to claim 8,
wherein the ~~bis-phosphorylated ligand is labelled~~
by competitor protein or competitor peptide further
comprises a label selected from the group consisting
of a luminescent tag, a radioactive marker, a reporter
enzyme, and an affinity legend tag.

Please amend claim 10 as follows:

10. [CURRENTLY AMENDED] The process according to claim 9,
wherein the ~~ligand~~ competitor protein or competitor
peptide comprises the amino acid sequence of SEQ ID
NO:43 such that said sequence motif is

-Y'-X'-Z'-

wherein

Y' is phosphorylated at amine acids Tyr⁵ and 7, and
particular is of SEQ ID NO:4 that 3,

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X' is Pro⁶ of SEQ ID NO:3, and

Z' is phosphorylated at ~~amine acids 5 and Thr⁷~~ and
has 5 TAMRA ABEA at the carboxy terminus of SEQ
ID NO:3.

Please amend claim 11 as follows:

11. [CURRENTLY AMENDED] The process according to claim 1,
wherein ~~the assay~~said d) detecting threonine or serine
kinase activity is performed as achieved by
fluorescence immunoassay detection, in particular a
fluorescence polarization immunoassay analysis, a
fluorescence correlation spectroscopic
assay spectroscopy, a fluorescence resonance energy
transfer assay analysis, or a fluorescence intensity
distribution assay analysis.

Please amend claim 12 as follows:

12. [CURRENTLY AMENDED] The process according to claim 1,
wherein X in the sequence motif comprises proline or
glutamate or glycine or combinations thereof.

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Please amend claim 13 as follows:

13. [CURRENTLY AMENDED] The process according to claim 1, wherein the threonine or serine kinase substrate protein or peptide provided is selected from the group consisting of the active site loop of JNK1, the active site loop of JNK2 or 2, and the active site loop of JNK3 protein. 3.

Please amend claim 14 as follows:

14. [CURRENTLY AMENDED] The process according to claim 1, wherein the threonine or serine kinase substrate protein or peptide provided ~~includes sequences identical to these~~ is selected from the group consisting of JNK1, JNK2, and JNK3 active site loop. 3.
- 1
Dependent
Cl. 13
in active site
loop
can't be active site
loop

Please amend claim 15 as follows:

15. [CURRENTLY AMENDED] The process according to claim 1, wherein the substrate protein or substrate peptide comprises the amino acid sequence of SEQ ID NO:2 such that said sequence motif is

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PATENT-Y-X-Z-wherein ~~amino acid 5~~Y is phosphorylated- Tyr⁵ of SEQ ID NO:2,X is Pro⁶ of SEQ ID NO:2, andZ is Thr⁷ of SEQ ID NO:2.

Please cancel claim 16 without prejudice.

16. [CANCELLED]

Please amend claim 17 as follows:

17. [CURRENTLY AMENDED] The process according to claim 1,
wherein the ~~incubation of the protein~~threonine or
~~peptidaserine kinase is carried out in the presence of~~
a threonine kinase.

Please amend claim 18 as follows:

18. [CURRENTLY AMENDED] The process according to claim
17, wherein the threonine kinase is a mitogen-

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activated protein kinase kinase ~~(MKK)~~ ~~(also named~~
~~stress activated protein kinase kinase, SKK).~~

Please amend claim 19 as follows:

19. [CURRENTLY AMENDED] The process according to claim 18, wherein the kinase is MKK7 ~~(also named SKK4)~~ 7.
20. [ORIGINAL] The process according to claim 1, wherein the antibody is a monoclonal or polyclonal antibody.
21. [ORIGINAL] The process according to claim 20, wherein the antibody is a polyclonal antibody.

Please amend claim 22 as follows:

22. [CURRENTLY AMENDED] The process according to claim 21, wherein the antibody is a polyclonal antibody specific for bis-phosphorylated, ~~in particular~~ active JNK.
23. [ORIGINAL] The process according to claims 1, wherein steps a) to d) are performed sequentially.

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Please amend claim 24 as follows:

24. [CURRENTLY AMENDED] A kit for detecting threonine or serine kinase activity in an immunoassay comprising the following components:

a substrate as defined in claim 1; and

an antibody as defined in claim 1; ~~and~~ 1.

Please amend claim 25 as follows:


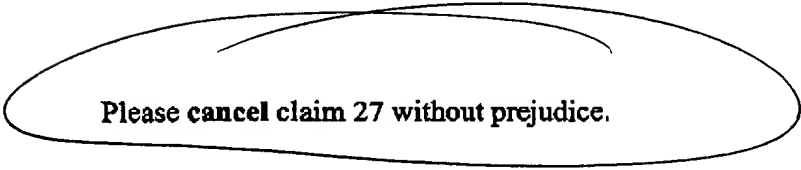
25. [CURRENTLY AMENDED] The kit according to claim 24 further comprising a threonine or serine kinase, and/or a reaction buffer ~~buffer including~~ comprising a phosphate donor, ~~preferably ATP.~~

Please amend claim 26 as follows:

26. [CURRENTLY AMENDED] The kit according to claim 24 further comprising a labelled ligand, ~~preferably~~ luminescently labelled ligand, said ligand ~~competitor~~ protein or labelled competitor peptide comprising the following sequence motif

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PATENT~~-Z-X'-X'-Y' or - or Y-X-Z-~~

wherein

~~Z - threonine or serine~~~~X - a sequence of amino acids, preferably~~~~between 1 and 1000 amino acids, which may be
the same or different~~~~Y - tyrosine, Y'-X'-Z'-~~whereinZ' = phospho-threonine or phospho-serine
~~said protein or peptide ligand being phosphorylated at
the Z and Y positions,~~X' = a sequence of amino acids, preferablybetween 1 and 1000 amino acids, which may be
the same or differentY' = phospho-tyrosine, phospho-threonine or
phospho-serine.
Please cancel claim 27 without prejudice.

27. [CANCELLED]

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Please cancel claim 28 without prejudice.

28. [CANCELLED]

Please add new claim 29 as follows:

29. [NEW] A immunoassay for screening modulators of
threonine or serine kinase activity comprising:

a) providing a threonine or serine kinase substrate
protein or peptide comprising the sequence motif

-Z-X-Y or -Y-X-Z-

wherein

Z = threonine or serine

X = a sequence of amino acids, preferably
between 1 and 1000 amino acids, which may be
the same or different

Y = phospho-tyrosine, phospho-threonine or
phospho-serine;

b) incubating the protein or peptide with a
phosphate donor and a threonine or serine kinase

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to form a protein or peptide which is
phosphorylated at positions Y and Z;

- c) adding an antibody having a specificity to a
peptide or protein which is phosphorylated at the
Y and Z position;
- d) adding a test compound;
- e) detecting the threonine or serine kinase
activity; and
- f) comparing the threonine or serine kinase activity
in the presence of the test compound with the
threonine or serine kinase activity in the
absence of the test compound,

wherein altered threonine or serine kinase activity in
the presence of the test compound relative to
threonine or serine kinase activity in the absence of
the test compound indicates a modulator of threonine
or serine kinase activity.

Please add new claim 30 as follows:

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30. [NEW] The method of claim 29, wherein a threonine or serine kinase inhibitor is indicated by lower threonine or serine kinase activity in the presence of the test compound relative to the threonine or serine kinase activity in the absence of the test compound.

Please add new claim 31 as follows:

31. [NEW] The process according to claim 3, wherein the direct binding immunoassay is a homogeneous direct binding immunoassay.

Please add new claim 32 as follows:

32. [NEW] The process according to claim 5, wherein said label is selected from the group consisting of a luminescent tag, a radioactive marker, a reporter enzyme, and an affinity ligand.

Please add new claim 33 as follows:

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33. [NEW] The process according to claim 7, wherein the indirect binding immunoassay is a homogenous indirect binding immunoassay.

Please add new claim 34 as follows:

34. [NEW] The process according to claim 10, wherein the competitor protein or competitor peptide further comprises 5-TAMRA-AEEA at the carboxy terminus.

1/condid.

Please add new claim 35 as follows:

35. [NEW] The kit according to claim 25, wherein the phosphate donor is ATP.
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